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EXAMINER

MEHRA, INDER P

ART UNIT

PAPER NUMBER

2617

DATE MAILED: 10/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/035,791

Applicant(s)

COLE ET AL.

Examiner

Inder P. Mehra

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 and 35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/18/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 12/9/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. This office action is in response to application dated: 7/17/06. Based on this amendment, out of pending claims 1-36, claims 34 and 36 are cancelled. Claims 1-33 and 35 are pending. Claims 1, 3, 8, 18, 28, and 35 are amended.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lebizay et al** (US Patent No. 5,602,841), hereinafter Lebizay in view of **Lo et al** (US Patent No. 6,785,236), hereinafter, Lo, further in view of **Turner et al** (US Patent NO. 6,907,041), Turner.

For claims 1-2, Lebizay discloses "A method of allocating memory buffer space for traffic of network connections, (refer to col. 11 lines 20-26), the method comprising:

- designating fixed buffer allocation space, wherein buffers the fixed buffer allocation space are associated fixed buffer allocation queue identifications (refer to col. 14 lines 25-40 and col. 24 lines 23-25; and

Lebizay does not disclose expressly the following limitations, which are disclosed by Lo, as follows:

- designating prioritized fair share buffer space, wherein buffers in the prioritized fair share buffer space are associated with prioritized fair share queue identifications,

(refer to DQ SUB.00 (high priority queues), DQ SUB.01 (low priority queues), fig. 1, loaded for transmission into corresponding buffers 20 ---buffer manager 24, col. 4 lines 6-18);

- and all of the buffer space is actually allocated to the prioritized fair share buffer space, refer to Lo's col. 5 lines 5-15. Since Lo discloses all buffers for prioritized fair share buffer, refer to fig. 1, there is no space for "fixed buffer allocation space".

Lebizay in view of Lo does not disclose explicitly the following limitation, which is disclosed by Turner, as follows:

- Wherein none of the buffer space is actually allocated to the fixed buffer allocation space, (buffers and departure buffers are all of fixed size, and there is no sharing of memory space, refer to col.7 lines 58-60.

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of "designating prioritized fair share buffer space, wherein buffers in the prioritized fair share buffer space are associated with prioritized fair share queue identifications" as taught by Lo. The capability can be implemented in buffer and queue structure. The motivation for using buffers and queue structure, as taught by Labizay, in the communications network for processing , optimizing the queuing and de-queuing operations and manipulate the packets.

For claim 2, Lebizay discloses "wherein the step of designating fixed buffer allocation space includes reserving a semi-permanent portion of the fixed buffer allocation space for the network connections, (refer to col. 12 lines 10-12.

4. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebizay in view of Lo and Turner, as above, further, in view of **Patrick** (US Patent Application No. 2005/0175014).

For claim 3, Lebizay in view of Lo and Turner discloses all the limitations of subject matter, with the exception of the following limitations which are disclosed by Patrick, as follows:

- “wherein the step of designating prioritized fair share buffer space further comprises determining a weighting value for each network connection, and wherein network connection having a higher weighting value is proportionately allocated a greater amount of prioritized fair share buffer space”, (refer to **paragraph 0006 and 0030**).

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of “wherein the step of designating prioritized fair share buffer space further comprises determining a weighting ---a higher weighting value is proportionately allocated a greater amount of prioritized fair share buffer space” as taught by Patrick. The capability can be implemented in buffer and queue structure. The motivation for using buffers and queue structure, as taught by Patrick, in the communications network is for providing statistical assurance of bandwidth.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lebizay in view of Lo, Turner, and Patrick, as above, further, in view of **Mahalingaiah** (US Patent Application No. 6,788,701), hereinafter, Mahalingaiah.

For claim 4, Lebizay in view of Lo, Turner, and further in view of Patrick discloses all the limitations of subject matter, with the exception of the following limitations which are disclosed by Mahalingaiah, as follows:

- receiving traffic of a particular network connection, refer to col. 9 line 66 through col. 10 line 13;
- determining a particular buffer allocation for traffic of the particular network connection, refer to col. 10 lines 10-27 and col. 14 line 30 through col.15 line 15;
- allocating the traffic the particular network connection to the particular buffer allocation, refer to col. 10 lines 10-13 and col. 14 lines 48-55.

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of receiving traffic of a particular network connection, determining a particular buffer allocation for traffic of the particular network connection, allocating the traffic the particular network connection to the particular buffer allocation as taught by Mahalingaiah. The capability can be implemented in buffer and queue structure. The motivation for using buffers and queue structure, as taught by Mahalingaiah, in the communications network is for enabling routing mechanism to rout packets according to optimum path.

For claim 5, Lebizay discloses wherein the particular buffer allocation includes at least a portion of the fixed buffer allocation space; and a portion of the prioritized fair share buffer space, refer to col. 14 lines 25-40.

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6. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lebizay in view of Lo and Turner, further, in view of **Fishman et al** (US Patent No.6,084,869), hereinafter, **Fishman**.

For claim 6, Lebizay in view of Lo and Turner disclose all the limitations of subject matter, with the exception of the following limitations which are disclosed by Fishman, as follows:

- “prioritizing the prioritized fair share queue identifications to have relative rankings amongst the prioritized fair share queue identifications”, **refer to col. 3 line 67 through col. 4 line 5.**

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of “prioritizing the prioritized fair share queue identifications to have relative rankings amongst the prioritized fair share queue identifications”, as taught by Fishman. The capability can be implemented in buffer and queue structure. The motivation for using buffers and queue structure, as taught by Fishman , in the communications network is for reserving channel resources.

For claim 7, Lebizay discloses all the limitations of subject matter, with the exception of the following limitations which are disclosed by LO, as follows:

* wherein each queue identification is prioritized amongst queue identifications to have 1 of 16 different priority levels (refer to figs 1 and 3, col. 4 lines 5-10.

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of “wherein each queue identification is prioritized amongst

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queue identifications to have 1 of 16 different priority level”. The motivation for using buffers and queue structure, as taught by Fishman , in the communications network is for reserving channel resources.

7. Claims 8-9, 15, 18-19, 25, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Park** (US Patent No. 6,430,187), hereinafter Park in view of **Lo et al** (US Patent No. 6,785,236), hereinafter, Lo.

For claims 8-9, 15, 18-19, 25, 28 and 30, Park discloses “A method discarding a prioritized fair share traffic of network connections, refer to col. 1 lines 15-18, and col. lines 55-65, the method comprising:

- receiving traffic of at least particular network connection, (**temporarily store cells that have been created from received frames (particular network connection), before cells are transmitted**, refer to col. 1 lines 40-45, receives a MAC frame from a port 33 (particular network connection), col. 4 lines 24-25;
- filling a portion of a fixed buffer allocation space with traffic of the particular network connection (Ethernet source , port), refer to col. 1 lines 40-45, creates a buffer descriptor (identification) and places it in packet memory 38 (buffer), col. 4 lines 25-26; wherein a buffer the fixed buffer allocation space is associated with a fixed buffer allocation queue identification, refer to col. 4 lines 25-35, creates a buffer descriptor (identification) and places it in packet memory 38 (buffer), col. 4 lines 25-26;

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- filling a portion of a prioritized fair share buffer space with traffic of the particular network connection, refer to col. 1 lines 40-45, wherein a buffer in the prioritized fair share buffer space is associated with a prioritized fair share queue identification, (refer to fig. 7, flag field 106 (identification), col. 9 lines 44—50, “The DMA logic 34 manipulates **frame pointers (identification)** on queues in order to "move" the frames from one component to another, .col. 4 lines 25-35); and
- discarding portion of lowest priority traffic network connections, (the buffers may become full, resulting in the undesirable discarding of low-priority frames, refer to col. 1 lines 55-60).

Park does not disclose expressly the following limitations, which are disclosed by Lo, as follows:

- ‘wherein a buffer in the prioritized fair share buffer space is associated with a prioritized fair share queue identification’, refer to col. 5 lines 5-15,
- the fixed buffer allocation space is associated with a fixed buffer allocation queue identification wherein the fixed buffer allocation space is associated with a first discard scheme, **(maximum packet size is fixed , and that high priority packets always preempt low priority packets, refer to col. 6 lines 25-30) ;**
- wherein the prioritized fair share buffer space is associated with a second discard schemes the second discard scheme being different than the first discard scheme; (refer to figs. 1 and 3, **descriptors contained in a -priority---dequeued**, col. 5 lines 5-10 and col. 6 lines 25-30;

- discarding a portion of lowest priority traffic of the particular network connection based on the first discard scheme or the second discard scheme. the first or second discard scheme determined based on the fixed buffer allocation queue identification or the prioritized fair share queue identification associated with the lowest priority traffic, **(the descriptor queue associated with the channel has multiple internal queues, those descriptors contained in a high priority queue (e.g., queue DQ.sub.00 in FIG. 1) are dequeued ahead of descriptors contained in a low priority queue , refer to col. 5 lines 8-13.**

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of “wherein a buffer in the prioritized fair share buffer space is associated with a prioritized fair share queue identification”, as taught by Lo. The capability can be implemented in buffer and queue structure. The motivation for using buffers and queue structure, as taught by LO, in the communications network for processing , optimizing the queuing and de-queuing operations and manipulate the packets.

For claims 9 and 19, Park discloses “wherein the fixed buffer allocation space is configured to provide semi-permanent minimum buffer space each network connection”, refer to col. 1 lines 42-50.

8. Claims 10-11 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Park** in view of **Lo**, as above, further, in view of **Yoshikawa et al** (US Patent No. 6,532,234), hereinafter, ‘234.

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For claims 10-11 and 20-21, Park in view of Lo discloses all the limitations of subject matter of the claim, with the exception of the following limitation, which is disclosed by '234, as follows:

- wherein the fixed buffer space is configured to provide a guaranteed minimum buffer space to each network connection, **as recited by claims 10 and 20**, refer to col. 3 lines 3-5.
- wherein the shared buffer space is configured to provide a non-guaranteed buffer space to each network connection, and is configured to be shared amongst network connections, refer to col. 3 lines 5-10.

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of “wherein the fixed buffer space is configured to provide a guaranteed minimum buffer space to each network connection”, as taught by '234. The capability can be implemented in buffer and queue structure. The motivation for using buffers and queue structure, as taught by '234, in the communications network for processing , optimizing the queuing and de-queuing operations and manipulate the packets.

9. Claims 12 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Lo and '234, as above, further, in view of **Fishman et al** (US Patent No.6,084,869), hereinafter, Fishman.

For claims 12 and 22, Park in view of Lo and '234 discloses all the limitations of subject matter, with the exception of the following limitations which are disclosed by Fishman, as follows:

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- “prioritizing the prioritized fair share queue identifications to have relative rankings amongst the prioritized fair share queue identifications”, refer to col. 3 line 67 through col. 4 line 5.

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of “prioritizing the prioritized fair share queue identifications to have relative rankings amongst the prioritized fair share queue identifications”, as taught by Fishman. The capability can be implemented in buffer and queue structure. The motivation for using buffers and queue structure, as taught by Fishman , in the communications network is for reserving channel resources.

10. Claims 13-14, 16-17, 23-24, 26-27, 29 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of Lo and ‘234, further, in view of **Patrick** (US Patent Application No. 2005/0175014).

For claims 13-14, 23-24 and 29, Lebizay in view of Lo discloses all the limitations of subject matter, with the exception of the following limitations which are disclosed by Patrick, as follows:

- wherein a portion size for each network connection is based upon a weighting value assigned to each network connection., (refer to paragraph 0006 and 0030).
- “wherein the step of designating prioritized fair share buffer space further comprises determining a weighting value for each network connection, and wherein network connection having a higher weighting value is proportionately allocated a greater amount of prioritized fair share buffer space”, (refer to paragraph 0006 and 0030).

It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of “wherein the step of designating prioritized fair share buffer space further comprises determining a weighting ---a higher weighting value is proportionately allocated a greater amount of prioritized fair share buffer space” as taught by Patrick. The capability can be implemented in buffer and queue structure. The motivation for using buffers and queue structure, as taught by Patrick, in the communications network is for providing statistical assurance of bandwidth.

For claims 16-17, 26-27 and 31-33, Park discloses the following limitations:

- wherein the traffic of the particular network connection has a lower quality of service value than that of traffic of the least one other network connection, and wherein the discarding step comprises discarding traffic the particular network connection, refer to col. 1 lines 42-64.
- wherein the step of filling the portion of the prioritized fair share buffer space comprises filling substantially all of the prioritized fair share buffer space, and wherein the discarding step is triggered by the step of filling substantially all of the prioritized fair share buffer space, refer to col. 1 lines 42-64.

11. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Lebizay et al** (US Patent No. 5,602,841), hereinafter Lebizay in view of **Lo et al** (US Patent No. 6,785,236),

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hereinafter, Lo, further in view of **Soumiya et al** (US Patent NO. 5,818,818), hereinafter, **Soumiya et al**.

For claim 35, Lebizay discloses “A method of allocating memory buffer space for traffic of network connections, (refer to col. 11 lines 20-26), the method comprising:

- designating fixed buffer allocation space, wherein buffers the fixed buffer allocation space are associated fixed buffer allocation queue identifications (refer to col. 14 lines 25-40 and col. 24 lines 23-25; and

Lebizay does not disclose expressly the following limitations, which are disclosed by Lo, as follows:

- designating prioritized fair share buffer space, wherein buffers in the prioritized fair share buffer space are associated with prioritized fair share queue identifications, **(refer to DQ SUB.00 (high priority queues), DQ SUB.01 (low priority queues), fig. 1, loaded for transmission into corresponding buffers 20 ---buffer manager 24, col. 4 lines 6-18);**

Lebizay in view of Lo does not disclose explicitly the following limitation, which is disclosed by Soumiya, as follows:

- wherein all of the buffer space is actually allocated to the fixed buffer allocation space, and none of the buffer space is actually allocated to the prioritized fair share buffer space, **(“the control unit 3 reads a fixed length packet out of the buffer for the quality of class to which the above mentioned right has been given”, refer to col. 4 lines 25-28, further, it discloses “a certain class is given the right to use open time slots (empty time slots) with priority, refer to col. 4 lines 19-20. It**

means that there is no prioritized fair share buffer space based on other different classes besides “Fixed Buffer”.)

.It would have been obvious to the person of ordinary skill in the art at the time the invention to use the capability of “designating prioritized fair share buffer space, wherein buffers in the prioritized fair share buffer space are associated with prioritized fair share queue identifications” as taught by Lo, and “wherein all of the buffer space is actually allocated to the fixed buffer allocation space, and none of the buffer space is actually allocated to the prioritized fair share buffer space”, as taught by Soumiya. The capability can be implemented in buffer and queue structure. The motivation for using buffers and queue structure, as taught by Labizay, in the communications network for processing , optimizing the queuing and de-queuing operations and manipulate the packets.

Response to Arguments

12. Applicant's arguments with respect to claims 1-33-and 35 have been considered but are not persuasive.

Applicant argues, “First, as an initial matter, clarification is requested with respect to the rejection of claim 4. The Examiner states that claim 4 is rendered obvious by Lebizay in view of Lo and further in view of Patrick (see O.A. page 5). However, it does not appear that the specific citations provided by the Examiner exist in any of these references. In addition, reference is made to "Mahalingaiah" but the details of this reference are not provided. Thus, Applicants respectfully request clarification as to the reference the Examiner is citing in the rejection of claim 4.

In response, examiner states that the prior art cited is "Mahalingaiah", as was mentioned in the office action and also in paragraph for "obviousness".

Applicant argues, "Lebizay does not disclose the following features of claim 1 as amended: 1) that "fixed buffer allocation space is associated with a first discard scheme", 2) that "prioritized fair share buffer space is associated with a second discard scheme", or 3) "discarding portion of lowest priority traffic based on the first discard scheme or the second discard scheme". Next, Lo discloses a method of scheduling the transmission of information between a descriptor queue and a transmission buffer, where the scheduler does not discard any portion of the information but merely takes information from the "high priority queue first if that queue is not empty" and transfers it to the transmission buffer (see column 6 lines 30-31). However, the scheduler of Lo does not disclose "a first discard scheme which determines if the traffic will be accepted into the buffers" (underline added). Last, Turner is related to methods of resequencing streams of information and does not disclose any discard schemes. Therefore, Applicants respectfully assert that Lebizay, Lo and Turner do not disclose all of the limitations of amended claim 1.

In response, Examiner states, Lebizay discloses, "In general, when a lack of resources is detected (free buffer list empty), then the packet which cannot be stored in the buffer memory is discarded".. This is first discard scheme. Regarding second discard scheme, it is obvious that low priority data will be discarded when data of higher priority is buffered, refer to Lo's col. 4 lines 6-18, and dequeued ahead of low priority data queues., refer to Lo's col. 5 lines 5-12. This is second discard scheme.

In light of above explanation, arguments by applicant are not persuasive.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Conclusion


14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Inder P. Mehra whose telephone number is 571-272-3170. The examiner can normally be reached on Monday through Friday from 8AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on 571-272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Inder Pal Mehra 10/6/06
Inder P Mehra
Examiner
Art Unit 2617


JOHN PEZZLO
PRIMARY EXAMINER